

CLAIMS

1. An apparatus comprising:
a wafer holder configured to spin a wafer
5 about an axis;
a controller for controlling spinning motion
of the wafer holder;
an inner plating bath container positioned
along the axis;
10 a first channel having a first inlet at least
partially surrounding the axis, a lower portion of
the first inlet having a first height, an upper
portion of the first inlet having a second height;
a second channel having a second inlet at
15 least partially surrounding the axis, the second
channel having a lower portion having a third
height higher than the second height; and
an actuator configured to selectively move
the wafer in a movement range along the axis, the
20 lowest position of the movement range being lower
than the first height.
2. The apparatus of Claim 1, wherein the
actuator is configured to position a wafer attachment
25 surface below the first height, between the first and
second height, or above the third height in response to
an instruction on an instruction terminal.
3. The apparatus of Claim 1, further comprising
30 a direct current source positioned in the inner plating
bath container.
4. The apparatus of Claim 1, further comprising:
a reservoir container connected to the first
35 channel; and

a pump connected between the reservoir container and the inner plating bath container for pumping solution in the reservoir container into the inner plating bath container.

5

5. The apparatus of Claim 4, wherein the first channel comprises a reclaim channel further comprising:
a reclaim drain coupled between the reclaim channel and the reservoir container for draining solution in the reclaim channel into the reservoir container.

10

6. The apparatus of Claim 5, wherein the second channel comprises a waste channel for channeling solution that enters the second inlet to a waste system.

15

7. The apparatus of Claim 1, wherein the first inlet completely surrounds the axis, and wherein the second inlet completely surrounds the axis.

20

8. A method comprising:

positioning at least a first portion of a wafer at a first position in an electroplating solution;

25

electroplating at least a second portion of the first portion of the wafer;

raising the wafer to a second position within a first height range over the electroplating solution;

30

applying a first volume of a first rinse solution to the wafer while the wafer is at the second position;

spinning the wafer at a first spin rate while the wafer is at the second position; and

35

receiving spun-off solution in a waste inlet.

9. The method of Claim 8, wherein applying a first volume comprises applying over 10 milliliters of the first rinse solution to the wafer.

5

10. The method of Claim 9, wherein applying a first volume comprises applying over 10 to 150 milliliters of the first rinse solution to the wafer.

10

11. The method of Claim 9, wherein applying a first volume comprises applying over 50 milliliters of the first rinse solution to the wafer.

15

12. The method of Claim 8, wherein spinning at a first spin rate comprises spinning the wafer in a range of from 300 to 800 rotations per minute.

20

13. The method of Claim 8, further comprising:
after electroplating and before raising the wafer to the second position, raising the wafer to a third position within a second height range over the electroplating solution; and
spinning the wafer at a second spin rate while the wafer is at the third position.

25

14. The method of Claim 13, further comprising:
while spinning at a second spin rate,
applying a second volume of a second rinse solution to the wafer.

30

15. The method of Claim 14, wherein applying a second volume comprises applying less than 10 milliliters of the second rinse solution to the wafer.

16. ~~A~~ The method of Claim 15, wherein applying a second volume comprises applying 0 to 8 milliliters of the second rinse solution to the wafer.

Add
A2

11/11/2011 11:11:11